DOCUMENT RESUME

ED 220 810 CS 006 799

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TITLE The Use of Connectives in Community College Textbooks.
PUB DATE [80]
NOTE 16p.

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Allied Health Occupations Education; Content Analysis; *Content Area Reading; Form Classes (Languages); Higher Education; Physical Sciences; *Reading Instruction; *Reading Research; Social Sciences; *Structural Analysis (Linguistics); *Textbooks; Two Year Colleges
IDENTIFIERS *Connectives (Grammar)

ABSTRACT

To help community college reading teachers be aware of the connectives (conjunctions that join other words, phrases, clauses, or sentences) used in textbooks, a study was undertaken to find out which connectives appeared in a sample of 18 textbooks and which were used in the textbooks for three different subject areas--social science, physical science, and allied health fields. Twenty-three of the connectives chosen for the study were single words or phrases, and the twenty-fourth, a collective term labelled "list," referred to words joining a series of items such as "first" or "second." For each book, the total number of all-print pages was counted. Twenty percent of these were read and each occurrence of connectives was listed, then multiplied by the number of pages. After the tabulation of the connectives, the totals were added to the frequency of usage of the connectives. The word "as" was used most often, and the word "unless" was used least often. The connectives were then categorized and the usage of each category in each type of textbook was tallied. The results showed that different types of connectives were used in different textbooks, but the clarification and contrast connectives (for example, thus, as, such as, but, however, although, yet) were found most often in all three types of books and the condition connectives (if, whether, even though, unless) seemed to be used least often. (HTH)

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The Use of Connectives in Community College Textbooks

Joseph E. Howard, Jr.

Connectives are usually small words with a large impact. They are conjunctions which join other words, phrases, clauses, or sentences. Robertson (1968) and Katz and Brent (1968) studied elementary school children and concluded that a reader's understanding of connectives increased with grade level. Stoodt (1972) found that a young reader's understanding of connectives was linked to reading comprehension. Dawkins (1975) presented some syntactical structures, to include connectives, which were difficult for children. When older students, especially community college students, have been examined, the use of connectives still seemed to have an impact on reading comprehension. Marshall (1976) studied community college students and found that they recalled more information from a text in which the conditional relationships were explicitly expressed than they recalled from a text in which the relationships were not expressed explicitly. The use of connectives such as "if" and "then" seemed to aid the reading comprehension of the community college readers.

Reading educators have been aware of the importance of connectives and they have encouraged their students to pay attention to the way connectives are used. Textbooks for improving reading skills, such as Brown and Adams (1968), Smith (1972), and Langan (1978), have instructed students to use connectives in order to understand the relationships between ideas. Yet, despite the impact of connectives, as evidenced

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by Marshall's study, there does not seem to be much information regarding the actual use of connectives in community college textbooks. There has been some research for younger readers. Robertson (1968) and Stoodt (1972) each identified connectives in frequent use in basal series and Robertson concluded that there was not a consistent pattern of the frequency distribution for the connectives studied. Rodgers (1974) counted the use of more than 40 connectives in 35 textbooks for seven different courses at two different grade levels, the sixth and the twelfth. These studies of the use of connectives in textbooks, however, did not examine college textbooks.

Since the explicit use of some connectives seemed to help the reading recall of community college students, reading teachers should be aware of the connectives actually used in college textbooks. With this goal in mind, a study was undertaken to find out 1. which connectives appeared in a sample of 18 community college textbooks, and 2. which connectives were used in the textbooks for three different subject areas.

Procedures and Results

Twenty-four connectives were chosen for this study. Twenty-three of the connectives were single words or phrases; the twenty-fourth connective was a collective term labelled "list." It referred to those words or symbols which join a series of items. It included the words "first" or "second" or, more often, the number "1" or "2" or the letters "a," "b," "c." All of these connectives, except for the

term "list," were taken from lists compiled by Rodgers (1974) or Soltis and Pflaum (1979). (In this study, the word "and" was counted only if it linked two independent clauses or began a sentence).

The textbooks used were selected from those used by freshman at a large urban community college. In all, eighteen textbooks were examined. There were six social science books: three sociology and three psychology texts; six physical science textbooks: three chemistry, two biology, and one botany text; and six allied health textbooks: three nursing, one dietetics, one medical records, and one medical assistant text.

The procedure for counting connectives described by Rodgers (1974) was used. For each book, the total number of all-print pages was counted. (Pages of outline summaries were not counted; pages of prose summaries were. Pages with figures or illustrations were not counted, unless the illustrations were in the margin. In the physical science books, pages with formulas were counted, except in those cases where the formulas seemed to take up more than half of the page). Twenty percent of the all-print pages were read and each occurrence of the connectives listed was noted. The pages read were selected from the beginning, middle, and end of each book.

After the tabulation of the connectives used in each textbook was completed, the totals were added to find the frequency of usage for the 24 connectives. Table 1 lists the frequency of usage of the connectives. As indicated in the table, the word "as" was used most

Table 1

Ranking of the Connectives by Frequency

1.	as	13.	thus
2.	but	14.	"list"
3.	if	15.	then
4.	when	16.	since
5.	for example	17.	therefore
6.	and	18.	whether
7.	also	19.	yet
8.	however	20.	while
9.	such as	21.	in addition
10.	because	22.	too
11.	so	23.	even though
12.	although	24.	unless

often, the word "unless" was used least often.

In order to find out which connectives were used in the textbooks for different subject areas, the connectives and textbooks were grouped into categories. The connectives were divided into six categories, using labels adapted from Soltis and Pflaum (1979) and Pauk (1975). There were four connectives in each category. The connectives and categories were as follows:

Category	Connectives
Addition	and, in addition, also, too
Contrast	but, however, although, yet
Clarification	for example, thus, as, such as
Cause	because, since, therefore, so
Condition	if, whether, even though, unless
Sequence	when, then, while, "list"

This classification was intended to present six general categories; it was not intended to be definitive. For example, there are some words which may be included in two categories. As Pearson and Johnson (1978) pointed out, the words "when" and "then" may indicate both a causal and a sequential relationship. For this study, the words "when" and "then" were considered to signal at least some sort of a sequential relationship.

The 18 textbooks were grouped into the categories allied health, physical science, and social science. There were six books in each category.

The usage of each category of connective in each type of textbook was tallied. This sum total was divided by the number of pages read in each

type of book in order to find the mean number of each category of connective used per page in each type of textbook. The results are given in Figure 1.

An examination of the data indicated that different types of connectives were used in different textbooks. For example, contrast connectives, words such as "but" or "however," were most likely to be found in psychology or sociology texts. Cause connectives, the category which included the words "because" or "since," were most likely to appear in physical science texts. The clarification connectives, the category which included "as" and "thus," were most likely to be used in allied health books. There were also differences in the textbooks for the connectives used less often. In social and physical science books, the condition type connectives were used least often and in the allied health books the cause connectives did not appear often.

Despite these differences, each of the three types of books shared a number of features. The clarification and contrast connectives were the connectives found most often in all three types of books and the condition connectives seemed to be the words used least often.

Discussion

Community colleges enroll students with a wide range of abilities and interests. Goodwin (1971) said that the typical community college had students with a range of over ten levels of reading ability. Johnson (1969) found over a hundred curricula in some two-year colleges. This diversity of abilities and interests could present challenges for reading instructors who want to teach their students to understand the logical relationships expressed by connectives.

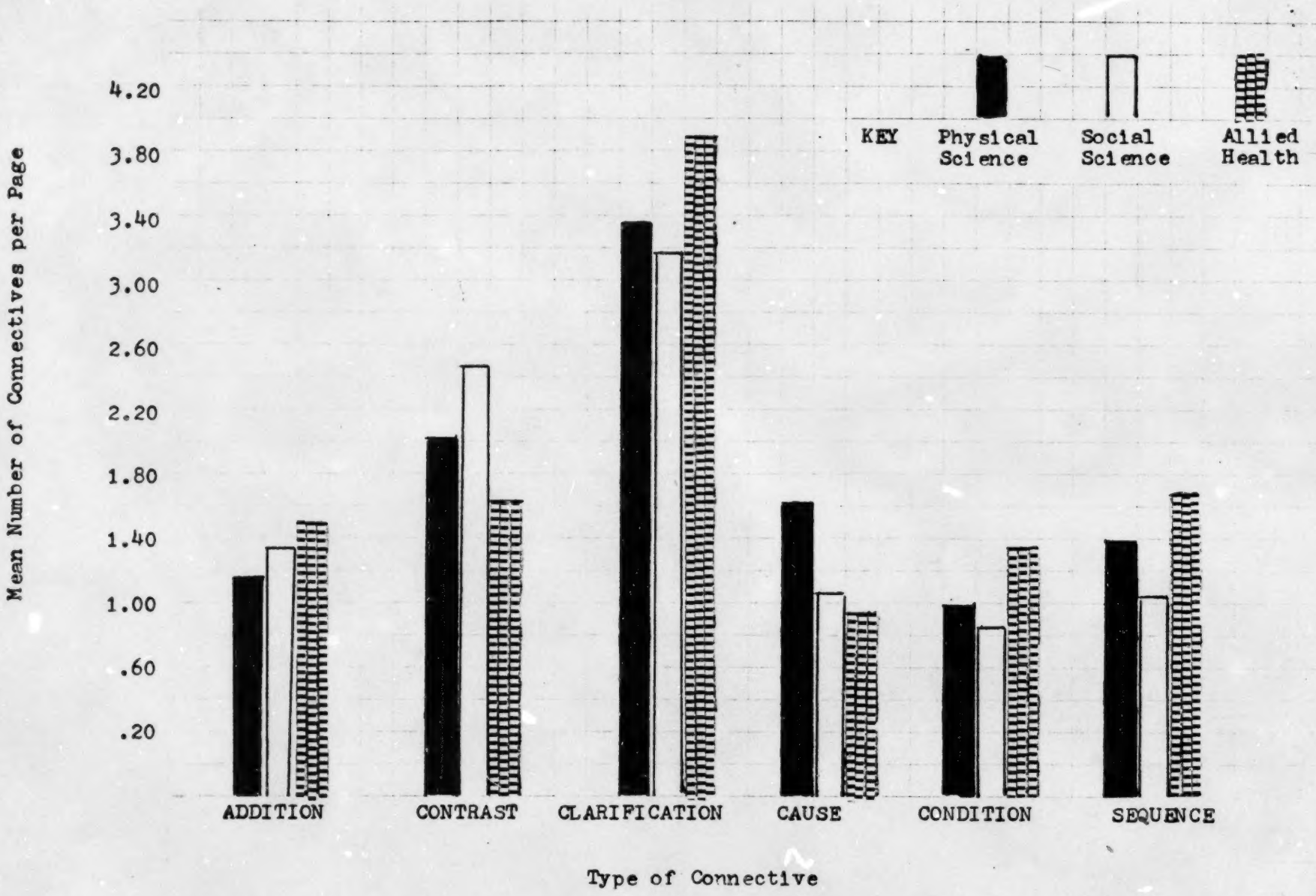

Figure 1: Relative Use of Connectives in Three Types of Textbooks

The results of this survey of connectives used in community college textbooks may provide some assistance for the instructor. The survey indicated which connectives were frequently used. Students who read textbooks in the three content areas, physical science, social science, and allied health, were likely to encounter the connectives "as," "but," or "if." These students were less likely to come across "too," "even though," or "unless" in their reading.

In her study of the writing of non-traditional college students, Shaughnessy (1977) said that the students were not necessarily deficient in their understanding of connectives, rather they were not aware of the terms used to express these relationships. In order to expose students to various connectives used to express the same type of logical relationships, college reading instructors could have the students read selections from various textbooks. For example, a selection from a social science textbook would be likely to illustrate contrast connectives.

Soltis and Pflaum (1979) described a three-part procedure which they found improved the reading comprehension scores and understanding of connectives for junior high school students. The students first identified the connectives as used in textbooks. Then the students learned the functions of the connectives by type. Finally, the students used the connectives in a writing exercise.

Reading teachers on the college level would want to teach their students to understand the logical relationships indicated by the various connectives. Since the types of connectives used in various textbooks differed, college reading teachers could use these differences to plan

instruction which would progress from the more frequent usage of connectives to the less frequent, and from the more familiar to the less familiar.

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Introduction to Patient Care by Beverly DuGas. (W. B. Saunders Publishing Co., Philadelphia, 1977)

Medical Assistants by Lawton, Foy, Thomas, & Schramske. (C. V. Mosby Co., St. Louis, MO., 1980)

Medical Record Management by Edna Huffman. (Physician's Record Co., Berwyn, IL., 1972)

Principles of Nutrition by Eva Wilson, Katherine Fisher, and Pilar Garcia. (John Wiley & Sons, New York, NY., 1979)

The Nursing System: Issues, Ethics & Politics by Gloria Donnelly, Andrea Mengel, and Doris Sutterly. (John Wiley & Sons, New York, NY., 1980)

Physical Science

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